

DISTRIBUTED ENERGY RESOURCES

Weekly Summary of Events

www.eren.doe.gov/der

January 26, 2001

What's News With DER?

Vol. 2 NO. 4

DOE News

Over 240 experts from industry, state and federal agencies, and public interest groups met January 16-19 in Washington, D.C. for the annual DOE **Distributed Power Program Review Meeting**. At the meeting, the Department of Energy, National Renewable Energy Laboratory, the Oak Ridge National Laboratory and industry partners presented work being conducted as part of the program. Robert Dixon, Deputy Assistant Secretary for Power Technologies, provided an overview of distributed energy resources activities within his office. Joe Galdo, program manager for the Distributed Power Program, summarized the past year's accomplishments and the work planned for FY 2001 for the Distributed Power Program. Accomplishments included the release by the Secretary of Energy on May 31, 2000, of the report, *Making Connections*, which documents the barriers to the interconnection of distributed generation and storage with the electric power grid. Industry performers detailed the work planned for FY 2000 under their projects in the areas of: interconnection requirements and testing; near-term applications; advanced system integration and control; and standards, codes and regulations.

Work discussed included planned modeling and field testing to support industry's development through the Institute of Electrical and Electronics Engineers (IEEE) development of a national standard for interconnection of distributed generation and storage with electric power systems. Earl Hodge of the DOE Nevada Operations Office outlined the potential for the DOE's Nevada Test Site as a test bed for examining the interaction of distributed energy resources with electric power systems. Other work described included: the integration and application of DER in local energy systems using current interface, control and communications technologies; communications and control technology for aggregating small DER to provide supplemental power during peak demand periods and avoid power outages; and the development of neural network based intelligent control technology to optimize the use of distributed energy resources.

In conjunction with the Distributed Power Program Review meeting, the IEEE Standards Coordinating Committee 21 working group on **P1547 "Standard for Interconnecting Distributed Resources to Electrical Power Systems"** met to review draft 6 of the interconnection standard they are

developing. The proposed standard is expected to go to ballot within the next few months. This will provide a national standard for use by state officials and individual utility and power producers, and facilitate the establishment of uniform national technical requirements for interconnecting distributed resources with the utility grid.

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Bill Golove, from the **Lawrence Berkley National Laboratory**, spoke at the San Diego, CA Distributed Generation Conference on "Distributed Generation and the U.S. Postal Service in California: Benefits and Barriers." The conference was held on January 16-18, and focused on USPS's experience in trying to develop a landfill gas generation project and several PV projects in CA.

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The first meeting of the **Distributed Resources Emissions Collaborative Activity**, facilitated by the Regulatory Assistance Project (RAP), was held on January 23, 2001 in Chicago. Under a subcontract with NREL supporting DOE's Distributed Power Program, RAP is tasked to use a collaborative consensus-building approach to develop a national model for output-based emissions performance standards for distributed resources. Meeting participants included state utility and environmental regulators, environmental advocacy organizations, and representatives from the distributed generation industry.

The initial meeting included discussion of the scope of the project, the process to be utilized, an initial baseline presentation of the issues by Dr. Jim Lentz of the University of California Riverside, and a discussion of principals to be followed in the approach development led by Joel Bluestein of Energy and Environmental Analysis.

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Pat Hoffman participated in the **Keystone Energy Natural Gas and Clean Power Conference**. Michael York, from the Energy Efficiency and Renewable Energy Front Office, and Fossil Energy's Nancy Johnson, and Christopher Freitas were also in attendance from DOE. The Keystone Center invited several members of FERC, DOE, EPA, DOT, Edison Electric Institute, American Gas Association, Interstate Natural Gas Association of America and other pipeline and energy industry members.

## Industry News

On January 9, **American Municipal Power-Ohio**, with assistance from **Paine Webber Inc.** and NatCity Investments Inc., successfully marketed a 20 year tax exempt bond for \$50.26 million at a true interest cost of 4.93%. A number of existing short-term interim financing notes will be paid off by the proceeds. The notes had been taken in 1999 and 2000 to finance construction and implementation to the group's distributed generation projects, which include 35 diesel units and three gas turbines located throughout Ohio.

*Public Power Weekly, Jan. 22*

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On January 25, **FuelCell Energy, Inc.** and **King County, Washington**, jointly announced the signing of an agreement to install a Direct FuelCell (DFC) power plant using municipal wastewater digester gas as the fuel. Last July, FuelCell Energy was selected for the project through a competitive process to install and operate a 1MW DFC power plant at the County's South Wastewater Treatment Facility in Renton, Washington (King County). Through a cooperative grant to King County from the U.S. Environmental Protection Agency, the two year demonstration project is cost-shared equally by FuelCell Energy and the County. Operations are expected to commence during the third quarter of 2002.

Business Wire, Jan. 25

Feature of the Week

Manhattan Scientifics To Develop a Fuel Cell Powered Vacuum Cleaner Prototype

Manhattan Scientifics, Inc. announced this week that it has entered into a joint agreement with **Electrolux LLC** and **Lunar Design, Inc.** to develop an evaluation prototype of a **fuel cell powered vacuum cleaner** for the home. The unique portable vacuum cleaner would free the user from electric cords and A/C wall plugs while providing full power cleaning performance. The unit's light weight and low noise coupled with freedom of movement throughout the home or business are potentially strong distinctive features in the market share battle for high-end vacuum cleaners.

The power system for Electrolux will use Manhattan Scientifics' mid-range fuel technology developed by its partner company, **No-vArs GmbH**, located in Germany. The fuel cell's design uses advanced composite materials and sealing technology to minimize size and weight. The system is a hydrogen/air system using hydrogen as fuel. It is anticipated that it will supply 1000 watts of power at ambient pressure with minimum ancillary equipment.

The prototype is being developed on an accelerated timetable, and it is anticipated that significant weight and size reductions will be incorporated into subsequent prototypes. The power system consists of two existing fuel cell stacks providing over one kilowatt of power, a hydrogen storage vessel and an electronic control board. For demonstration, the system is anticipated to produce 1-2 hours of operating time (depending on the size of the fuel vessel used) and will weigh approximately 10 pounds.

The hydrogen fuel is stored in a lightweight carbon fiber reinforced pressure vessel. This fuel supply can be refilled within seconds with a replacement tank via a quick connect/disconnect feature. Electrolux can use its worldwide in-the-home customer service network to deliver refilled hydrogen bottles to customers. Disconnect and replacement will be similar to bottled propane and butane replacement currently used for barbecue grills and heaters, yet the Electrolux units will be significantly smaller and lighter in weight.

In related news, Manhattan Scientifics announced last month that it has entered into an agreement with Aprilia, S.p.A., one of Europe's largest manufacturers of motor scooters and motorcycles, to develop a **fuel cell powered concept bicycle**. Aprilia unveiled the bicycle, a version of Manhattan Scientifics' Hydrocycle™ bicycle, in December at the Bologna Motor Show in Italy. Manhattan Scientifics is also working on portable versions of **fuel cells to power cellular phones**. (See the November 17, 2000, DER Weekly for more information: <http://www.eren.doe.gov/der/summaries.html>)

Sources:

Manhattan Scientifics, Inc. website: <http://www.mhtx.com>

California Hydrogen Business Council website: <http://www.ch2bc.org/>

CALENDAR OF EVENTS

Date	Event	Location	Other Information
JANUARY 2001			
29-30	Harvesting Clean Energy for Rural Development: New Economic Opportunities in Wind, Biomass, Solar and Geothermal Power	Spokane, WA	Curtis Framel DOE/Seattle 206-553-7841
28-31	Air Conditioning, Heating and Refrigeration Exposition	Atlanta, GA	www.agcc.org
FEBRUARY 2001			
8-9	Congestion Management Conference	Denver, CO	www.euci.com; 303-770-8800
8	NREL Brown Bag Series: Representation of Renewable Energy in Models	Washington, DC	www.nrel.gov/events.html
8	Distributed Energy Workshop for Federal Facility Managers	San Jose, CA	Gail Norby 303-384-7407; www.eren.doe.gov/femp/techassist/der_resources.html
12-14	CRN Technology Roadmap	Atlanta, GA	Steven P. Lindenberg, 703-907-5842
12-13	Power Outages: Harbinger for Things to Come?	Washington, DC	Nadine Harris 212-967-0095 x 238
20-22	Micro Power: Capitalizing on Distributed Energy Resource Strategies for Competitive and Reliable Power	San Francisco, CA	Bob Dixon is giving a talk entitled, "Distributed Energy Resources: What's New at the U.S. Department of Energy."
19-22	4th Industrial Energy Efficiency Symposium	Washington, DC	Sponsored by OIT; OPT will have a booth there; www.oitexpo4.com
22	Steel-Utility Workshop	Washington, DC	Peter Salmon-Cox; 202-586-2380
MARCH 2001			
8	NREL Brown Bag Series: Renewable Energy and Real Options Analysis	Washington, DC	www.nrel.gov/events.html
20-24	Distributed Generation Conference	San Diego, CA	www.powerin.org
21-23	5th Annual Distributed Generation and On-site Power Conference	New Orleans, LA	Pat Hoffman to give keynote address; www.dist-gen.com
22-24	Building Energy Conference	Boston, MA	Jonathon Tauer 413-774-6051, ext. 20
APRIL 2001			
2-3	Business Communications Company's 1 st Fuel Cell Conference	San Antonio, TX	EERE representative to speak; www.buscom.com
23-25	Intertech's Fifth International Conference on Distributed Power	Washington, D.C.	Hugh Olmstead; olmstead@intertechusa.com; 207-281-9606

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Date	Event	Location	Other Information
MAY 2001			
1-3	Industrial Energy Technology Conference	Houston, TX	jim@esl.tamu.edu
9-10	Energy Management Conference	San Diego, CA	Sponsored by FEMP; www.aeecenter.org
30-31	Fuel Cells Codes & Standards Summit V	College Park, MD	ronald.fiskum@ee.doe.gov
JUNE 2001			
3-6	FEMP Energy 2001 Conference	Kansas City, MO	www.energy2001.ee.doe.gov/
3-7	WindPower 2001 Conference	Washington, DC	www.awea.org; laura_keelan@awea.org
JULY 2001			
10-12	Gas Storage Workshop	Kingston, Ontario	David Quinn; quinn-d@rmc.ca
AUGUST 2001			
29-Sep 3	IEEC Integrated Energy Efficiency Congress	Cleveland, OH	Sponsored in part by FEMP; www.aeecenter.org
OCTOBER 2001			
24-26	World Energy Engineering Congress	Atlanta, GA	www.agcc.org